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ABSTRACT

This issue of Research and Educational Practice Improvement Notes discusses three recent studies on schooling: (1) "Changing Our Schools; The Realities," by Kenneth Tye; (2) "Innovation Up Close: A Field Study in Twelve School Settings," Volume Four of a study conducted by David P. Crandall and associates; and (3) "Methodological Research on Knowledge Use and School Improvement," a three-volume final report, by William N. Dunn, Burkhart Holzner, and their associates at the University of Pittsburgh. A synopsis of the Tye work, one of 30 technical reports comprising the "Study of Schooling" series, focuses on his findings regarding internal and external linkages and teacher characteristics in school improvement. Field study findings of the Crandall research, which analyzed the implementation of educational innovations at 12 school sites, are then summarized. Finally, approaches and techniques that Dunn et al. have identified as promising to expand present capacities for explaining, predicting, and shaping knowledge use are reviewed. (GC)

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RESEARCH & EDUCATIONAL PRACTICE IMPROVEMENT NOTES

New Research
Changing Schools • Innovation Up Close
Improving Research Methods

Confronting the Realities of Changing Our Schools

Readers of *Notes* who have seen the March and April 1983 issues of *Phi Delta Kappan* will have noticed John Goodlad's articles concerning A Study of Schooling. They will be happy to hear that his book describing the study, *A Place Called School*, will be published by McGraw-Hill in October. As the March *Kappan* makes clear, Goodlad's findings interest anyone concerned with school improvement: "The cards are stacked against innovation and change in American schools, says Mr. Goodlad after an in-depth study of 1,016 classrooms. Though the goals of schooling may be all-inclusive, pedagogy and curriculum seem to be geared to the lowest common denominators. If school improvement continues on its present course, Goodlad warns, our schools will remain very much as they are."

If you missed these articles, we recommend them. Goodlad's book will be must reading for anyone concerned with school improvement. While awaiting its publication, we looked at some Study of Schooling (SOS) technical reports, which are available in ERIC (ED 214 871—ED 214 899 and ED 218 241; abstracts in *Resources in Education*, August and November 1982). One of these thirty technical reports, Kenneth Tye's "Changing Our Schools: The Realities" (ED 218 241), directly addresses school improvement issues. Here is a synopsis of Tye's findings:

In the 1960s and 1970s, the emphasis was on change. Over time, however, it was discovered that changing schools was not an easy matter. "Much of the research data and a substantial amount of opinion based in experience seem to suggest that the total school—its curricula, structures, people and their relationships, and linkages to the greater community—must be the focus of school improvement efforts." Accordingly, Tye organizes his review of SOS data in terms of relationships between teachers and external sources, professional relationships within schools, and professional characteristics of teachers. Tye concludes by discussing some implications of study findings for future change efforts.

External Linkages. The teachers in SOS schools were influenced more by their own background, interests, and experiences and by their perceptions of students' interests and abilities than they were by information from other sources, including parents, consultants, curriculum guides, or textbooks. Teachers reported that outside resource people were available, but they said that these people were of little value, and they seldom used them. More often than not, their contacts with other teachers were a matter of choice; that is, the majority of contacts occurred in college courses, in-service classes attended on an individual basis, and meetings of educational organizations. Teachers felt that educational organizations and professional literature had some influence on their professional development, and there was evidence that teachers attended a variety of in-service programs. However, very few schoolwide planned change efforts were offered, and where they were, teachers did not always attend. Tye concludes: "Knowledge flows unevenly and without focus or plan in these schools."

Internal Linkages. While teachers' links with professional knowledge produced outside schools appeared to be haphazard and weak, the linkages within schools were no better. Tye looked at the teaching situation: One half of the elementary school teachers taught alone in a self-contained classroom, while three fourths of the junior high school teachers and four fifths of the high school teachers taught alone. Very few teachers received regular assistance from specialists. Only one small elementary school in the SOS sample was organized primarily for team teaching. Teachers' knowledge of their colleagues decreased with increase in level of schooling, but there was much variation across schools at the same level. Overall, teachers expressed only a moderate knowledge of their colleagues.

ED 022 834

Information sharing between teachers from different departments, teams, or grade levels varied. There was much more sharing at the elementary level, less at the junior high level, and little at the senior high level. School size was also a factor, since there was more cross-grade, team, or department communication at smaller schools.

Principal leadership varied a good deal among individual schools. Teachers reported that they had few discussions with their principal and that teachers initiated the majority of the discussions that did occur. Generally, teachers did not perceive the discussions to be very helpful. However, teachers felt moderately encouraged to experiment. Most teachers characterized principal leadership as laissez-faire against a backdrop of "keep the lid on." Thus, the SOS study found that teachers were more or less isolated within their school and that principals generally failed to open up that environment.

Personal Characteristics. Teachers' personal characteristics and background can also influence the possibility of change. On the average, teachers perceived that they had a lot of control and influence over all aspects of teaching and planning for their classrooms. For the most part, they were satisfied with that teaching and planning as it was.

However, teachers felt that they had progressively less influence over schoolwide policies related to student life, teacher life, and other issues and over selection and evaluation of school personnel. Overall, more elementary teachers than junior high school teachers and more junior high school than high school teachers felt that they had some influence over such policies.

Overall, teachers endorsed traditional and progressive educational beliefs at the same time, although they endorsed the traditional beliefs more strongly than they endorsed the progressive beliefs. Most teachers considered themselves to be political moderates.

While almost all secondary teachers felt that they had adequate preparation to teach their subject, a considerable number of elementary teachers said that they had inadequate preparation to teach at least one of the subjects that they were currently teaching. However, at all levels most teachers had taken some postcredential work in education. Moreover, at all levels of schooling, teachers felt that their precareer expectations for teaching had been fulfilled, and most teachers said that they would select education as a profession again. However, there were significant differences from school to school and from district to district, which suggests that the environment at individual schools affects teacher morale in significant ways. Finally, frustration regarding their work seemed to be general among teachers.

Implications for Change. Tye concludes from his analysis of SOS findings that change does occur, but it is not planned; instead, it depends on what Everett Rogers has called *social interaction*. "That is," Tye explains, "new ideas travel rather randomly through the system, from school to school, person to person. Teachers tend to be isolated in their own classroom, in control of what does on there and satisfied with the situation as is. They do not feel impotent to effect schoolwide decisions, they do not wish to call upon resource people, they individually select their own in-service or postcredential college work, and they are basically traditional in their beliefs."

The SOS data indicate that teachers are primarily in control, that principals intervene little, and that no one particularly wants it to be otherwise. Teachers often reject outside knowledge, they pursue a narrow range of new knowledge, they remain relatively isolated within their school, and they are satisfied with the status quo. However, other SOS data suggest that many teachers lack a number of the basic skills required for good teaching. "What we have then," Tye argues, "is the appearance of professionalism without the reality. It is no wonder that the social interaction pattern, the dominant mode of educational change in our schools, is not adequate to narrow the gap between the idealized version of schooling and what actually goes on in schools." Thus, it is "no wonder" to Tye "that many teachers express personal frustration and dissatisfaction with their own performance."

Tye concludes that the improvement of schools is a systematic problem that needs to be approached at a number of different points with a number of different strategies. Recognizing and intervening in the social interaction pattern by identifying and enlisting opinion leaders or enriching in-service offerings are two obvious strategies. Other, more direct and comprehensive strategies, such as networking, organizational development, linkage, and situational leadership training, can also be used.

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Looking at School Innovation Up Close

For Kenneth Tye, linkage is one possible strategy for school improvement. What happens when that strategy is followed is the subject of DESSI, Dissemination Efforts Supporting School Improvement, a study conducted by David P. Crandall and associates. (The April 1982 *Research and Educational Practice Improvement Notes* summarizes some early reports of DESSI findings.) The ten-volume final report, *People, Policies, and Practices: Examining the Chain of School Improvement*, will soon be published by The NETWORK, Inc. (290 South Main Street, Andover, Massachusetts 01810.) In the interim, *Notes* shares some findings from Volume Four, *Innovation Up Close: A Field Study in Twelve School Settings.*

One DESSI effort produced a "thick description" of schools involved in innovation that stands in stark contrast to the SOS schools depicted by Kenneth Tye. In the DESSI field study, which aimed at describing education improvement efforts in a close-up, realistic fashion, Michael Huberman and Matthew Miles of the Center for Policy Research, assisted by Beverly Loy Taylor and Jo Ann Goldberg, looked at seven National Diffusion Network (NDN) sites and five ESEA Title IV-C sites. Adopting standard ethnographic methods, DESSI field researchers collected data through nonparticipant observation, semi-structured and informal interviews, and documents during three or four intensive site visits over the 1979–80 school year. Field study data were augmented by DESSI survey data for each site. Sites were chosen to represent a wide range of geographical locations, settings, innovations, and length of implementation.

More than 2,700 pages of field notes were analyzed. Using a common set of research questions and a uniform format for tables, charts, and narrative text, analysts developed twelve comparable case reports. The cross-site analysis reported in *Innovation Up Close* summarizes the case reports briefly, then employs multisite matrices and causal networks to develop generalizations and explanations for elements of the implementation process as viewed at the twelve sites. Here is a summary of field study findings, reprinted directly from Volume Four with the permission of David Crandall and Matthew Miles:

> ***Before implementation.*** The innovations being tried were not minor; they were both elementary- and secondary-level and ranged from reading programs to environmental science units, work experience programs, and a complete alternative school. About half emphasized services to low-ability students. Most of the districts had active central office energy for improvement and a moderate to high past innovation history, though the schools were somewhat conservative. The local environment was reasonably stable for most.
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> ***Adoption.*** We found multiple, sometimes tangled motives for adoption, including, for administrators, instructional improvement and new funds and, for teachers, the chance to grow and enhance their current practice. Career plans figured in adoption for nearly half of both teachers and administrators, who wanted to maintain their position or move up. The basic adoption decision was usually made in the central office, with some consultation and negotiation to deal with doubts.
>
> ***Early implementation.*** The innovations loomed large for most site people, especially teachers, who saw them as complex, demanding, and often a poor fit to past practice. Administrators tended to minimize such problems, and though they noted organizational "fit" problems to some extent, [they] largely failed to anticipate the real stresses ahead. Most sites, except those where users had successfully negotiated "latitude" to simplify and "midgetize" the innovation, experienced a rough start, with much user confusion, overload, and self-preoccupation. Better preparation and assistance helped somewhat, but mainly for smaller scale innovations.
>
> ***The role of assistance.*** Sites with larger, more demanding innovations, with moderate funding, gave more frequent, intense, and sustained help to users; such user-oriented help, if sustained, contributed significantly to stabilization, as well as user reassurance, problem-solving skill, and repertoire expansion.
>
> ***Later implementation.*** Within six to eighteen months, depending on innovation size and demandingness, most users achieved mastery of the practice involved, and it "settled down" so that users felt confident and successful and could refine and extend the innovation. But, user mastery and settledness did not guarantee continuation, which depended on organizational-level routinization.
>
> ***Transformations.*** Our theoretical framework emphasized that, over time, innovations are usually themselves altered while in turn altering their users and the organizational context in which they are implemented.
>
> Most of the *innovations* changed and evolved considerably during implementation, mostly in the direction of simplification/reduction, with some reconfiguring of the practice to fit the local setting. Such changes happened more frequently for demanding, poor-fitting innovations, *if* administrators granted users "latitude" to make such changes. Some sites "overreached," then retrenched; others

"salvaged" originally discarded aspects; others "locally refitted" the innovation. Only two sites "enforced" faithful implementation.

There were moderate to strong changes in *users* in half the sites; many became "clinicians," who were able to help individual students productively. Early user changes were mostly in attitude to the innovation and skill in using it; later, there were shifts in more basic attitudes and constructs, such as self-efficacy, trust in pupils, and professional self-image.

There was *organizational* change in about half our sites, though this was mostly limited to the installation of the innovation itself. Bigger, more demanding innovations chosen because of local pressures for improvement and accompanied by administrative commitment and adequate user support led to full-scale implementation and change in organizational structure, procedure, and climate.

Outcomes. First, we looked at three outcomes emphasizing *fullness of implementation*: stabilization, percentage of use, and institutionalization. Most of our sites achieved moderate to high *stabilization* through user practice mastery and program "settledness." Good assistance was critical for mastery; settledness was achieved either by "enforcement" plus assistance or by refitting the innovation to the local setting.

Considering *percentage of eligible users*, we found that a few sites achieved very widespread use within buildings and their district, about half achieved it for within-buildings or specialized use only, and the remainder had minimal percentage of use. Administrative pressure, accompanied by assistance, leading to user commitment and mastery, made the difference. Good teacher-administrator relationships were required for success.

About half the sites showed reasonably strong *institutionalization*. Here, too, pressure and assistance were needed, plus organizational changes needed to support routine use by many users. Job stability for both user and administrators helped.

Our second set of three outcomes emphasized *impact*: student impact, user capacity change, and job mobility.

Student impact was high to moderate in most of our sites and was largely positive; it included general or metalevel effects (such as increased responsibility taking) beyond specifically intended outcomes (such as improved reading performance). There was more impact when good-quality innovations (the bulk of those in the sample) were used skillfully and stably by committed users. There was less impact when innovations were "adapted out of shape" or used indifferently.

Did the programs develop increased *user capacity*? Yes, in slightly over half the sites, where added career "crystallization," more "cosmopolitanization," and improved dissemination skills developed in addition to the improved teaching concepts and skills already noted. In brief, if users attempted more, they learned more that they could transfer beyond the immediate innovation.

There was a moderate amount of *job mobility* of key people, about a third of it upward, in most of our sites. There was more mobility in IV-C than in NDN sites. Mobility occurred because of innovative success, because of sheer opportunism, and because of locally developing turbulence, such as fiscal crises. Job mobility often, but not always, destabilized the local project.

Success and failure. Summing outcomes across the twelve sites, we found four patterns leading to success or failure. "Enforced, stabilized use" (two sites) resulted in the best overall outcomes, where administrators pushed, required faithful implementation of a demanding project, and gave collaborative assistance to hard-working users who were struggling to achieve practice mastery. "Overreaching" projects (four sites) also started big but with less pressure; committed users learned to do the practices well, but burnout, job mobility, and weak institutionalization sometimes reduced overall impact. "Blunting/downsizing" occurred for four NDN projects, which were excessively weakened by reductions in scope. Finally, we saw project failure in only two sites; it was an "indifference/discouragement" scenario, where pressure without assistance in implementing a weak project led to low motivation on the part of users and administrators alike.

On balance, it can be concluded that innovations like these can work well if administrators and teachers aim high and can work well together to link their separate worlds. Administrative commitment, pressures, and assistance must be coupled with users' mastery of the innovation, their mutual support, professional development, and commitment.

Innovations can work if administrators and teachers work together to link their separate worlds.

Improving Methods for Research on Knowledge Use

Research on knowledge use in education and other social fields is a relatively new specialty, so it is not surprising that it varies in quality and that it is limited by research methods. With a recent study, however, William N. Dunn, Burkhart Holzner, and their associates at the University of Pittsburgh have made a remarkable contribution to research on knowledge use by identifying some approaches and techniques that promise to expand present capacities to explain, predict, and shape the process of knowledge use.

Conducted under a grant from the Research and Educational Practice Program of the National Institute of Education, the project undertook to describe, evaluate, and recommend alternative concepts, methods, and techniques for research on knowledge use. The project asked three key questions: What is knowledge use? How is knowledge assessed? How can we conceptualize and measure knowledge transactions? In order to identify and develop procedures for describing knowledge in use and for measuring and analyzing user frames of reference in contexts of social decision making and collective action, Dunn and Holzner conducted an inventory of procedures available for the study of knowledge use.

Following an extensive literature search, more than 100 investigators were contacted and asked to provide descriptions of their procedures. This effort yielded a pool of 200 procedures, which were narrowed down to 65. Next, these procedures were compared, contrasted, and evaluated for their reproducibility and face relevance to knowledge use. The three-volume final report on these efforts, *Methodological Research on Knowledge Use and School Improvement*, will soon be available in ERIC. Here, *Notes* summarizes the project's five main findings.

First, many of the procedures identified failed to meet standards for reproducibility, reliability, and validity. Of the hundreds of studies surveyed, few were based on reproducible procedures. Where procedures were reproducible, there were few instances in which the same procedure had been applied by two or more investigators. Thus, research on knowledge use has the same segmented, noncumulative character as research carried out in more established disciplines. Finally, only eighteen of the studies examined reported attempts to establish the validity of measured constructs.

Second, formal definitions of knowledge use are generally absent from such studies. When definitions are provided, knowledge is often viewed simply as the equivalent of research or information or as the embodiment of some normative image. Much of the research views knowledge use in one of two ways: conceptual or instrumental. Conceptual use is generally understood in terms of mental processes, such as problem definition, while instrumental or behavioral use is equated with individual or collective action, such as adoption of an innovation. If these two types of knowledge use are crossed with two others—a view of knowledge as imposed on users (imperativism) or as generated by users (constructivism)—four categories result. These categories help to explain many differences in the ways that researchers view knowledge and knowledge use. *Conceptual imperativism* prevails among investigators who hold normative images of knowledge that emphasize fixed structures, styles, or traits. *Conceptual constructivism* is evident among investigators who prefer a broad, flexible, or even diffuse definition of knowledge use that stresses changes in perceptions, orientations, interpretations, and assumptions. *Behavioral* or *instrumental imperativism* focuses on overt actions that presumably are tied to relatively fixed or common structures for producing, disseminating, and using knowledge. Finally, *behavioral constructivism* defines knowledge use primarily in terms of overt behavior connected with user-generated knowledge.

Ernest House examines and illustrates the first three kinds of knowledge use in his paper "Three Perspectives on Innovation: Technological, Political, and Cultural," included in *Improving Schools*, a volume edited by Rolf Lehming and Michael Kane (Sage Publications, 1981). The technological perspective corresponds to conceptual imperativism, the cultural perspective corresponds to conceptual constructivism, and the political perspective approximates behavioral imperativism. Brenda Dervin's research on information user sense making—see her contribution to *Communication Yearbook 6* (Sage Publications, 1982)—illustrates one type of behavioral constructivism.

Approximately 70 percent of the forty-two studies reviewed in depth for the University of Pittsburgh study were based primarily on behavioral or instrumental definitions of knowledge use. Most of these studies neglected properties related to the purposes, expected benefits, or underlying meanings of knowledge and its uses. Yet, even the studies based on conceptual definitions focused primarily on surface properties of knowledge. Indeed, only thirteen studies attempted to elicit subjective meanings attached to knowledge by users.

Third, the distinction between conceptual and instrumental uses of knowledge and the contrast between imposed and generated knowledge oversimplified knowledge classification. Thus, additional dimensions are needed. The University of Pittsburgh researchers propose several. For example, taking the content of knowledge as given, knowledge use can be classified by *usership*—the persons or groups who use knowledge; by its *objects*—recommendations, empirical generalizations, hypotheses, theories, models, concepts, assumptions, principles, ideas, and so forth; by the *directness* of its relationship with the source

of knowledge; by its *proximity in time* to that source; and by the magnitude of its expected *effects*.

Taking the uses of knowledge as given, knowledge content can be classified by the persons or groups who *subscribe* to it (personal, professional, public); by the *source* of knowledge (scientific, craft, experiential, ordinary); by its content *object* (broad, such as educational or political knowledge, or narrow, such as criminal justice or welfare); by the nature of the *benefits* expected to accrue from use (practical, intellectual, spiritual, and so forth); and by the criteria of assessment that *warrant* its certification as knowledge (empirical, analytical, pragmatic, ethical, and so forth).

Fourth, a generative classification scheme is needed. Formal dimensions, such as those outlined in the preceding paragraphs, are likely to make valid representations of knowledge and knowledge uses only if the dimensions and their constructs have been coordinated with the meanings ascribed by users. Simple questions about subscribership, usership, and source as well as more complex questions about expected effects, benefits, and warrants are difficult if not impossible to address by studying overt behavior alone. For that reason, researchers must ground their constructs in the knowledge-in-use of the persons whose behavior they seek to understand. At present, no such classification scheme seems to exist, either for education or for other practice areas.

Fifth, sociocultural grid procedures seem to hold promise for development of the needed generative typologies. Grid procedures can be traced to early sociometry (Moreno), Q-methodology (Stephenson), the semantic differential (Osgood), and the repertory grid (Kelly). All these procedures rely on the simple but powerful idea of a data grid with $m \times n$ constructs and elements that permit simultaneous measurement of social and interpersonal space. Thus, these procedures are sociocognitive in the full sense of the term. The principal methodological advantage of such procedures is that they facilitate relational study of knowledge use. This advantage can be contrasted with the strikingly nonrelational focus of most contemporary research on knowledge use. Research that defines frames of reference almost exclusively in the researcher's own terms and then aggregates data over individuals loses the relational and contextual nature of knowledge use to "methodological shredders" that "tear respondents from their own distinctive contexts of intrapersonal and social space."

There is an urgent need, say Dunn and Holzner, "for new methods that facilitate the development of what might be called a sociocognitive science of knowledge application, a science that is centrally concerned with the practical consequences of scientific research and development for social change and individual and collective learning."

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Three recent studies examine important facets of practice improvement: schools, innovation, linkage, and knowledge use